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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Lance E. Brothers et al.	)		
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Serial No.:	09/522,424	)	Art Unit:	3672
		)		
Filed:	March 9, 2000	)		
		)	Examiner:	Unknown
For:	CEMENTING IN DEEP	)		
	WATER OFFSHORE WELLS	)		

PRELIMINARY AMENDMENT

Box PATENT APPLICATION
Commissioner for Patents
Washington, D.C. 20231

Sir:

Please amend the specification as follows:

__In the Specification__:

Please insert the following on page 1 after the title:

Cross-References to Related Application

This application is a Continuation of Application
Serial No. 09/522,424 filed on March 9, 2000.

Please amend page 1, paragraph 1 thereof, to read as follows:

(amended) The present invention relates to improved methods and compositions for cementing casing strings in well bores, and more particularly, to methods and compositions for cementing conductor or surface casing strings in deep water offshore wells.

Please amend page 3, paragraph 2 thereof, to read as follows:

(amended) The present invention provides improved methods and compositions for cementing casing in deep water offshore formations penetrated by well bores which meet the needs described above and overcome the deficiencies of the prior art. The methods of the invention basically comprise the steps of preparing a foamed cement composition comprised of calcium aluminate cement, a set accelerating additive, a thickening time increasing additive, water in an amount sufficient to form a slurry, a gas in an amount sufficient to form a foam and a mixture of cement composition foam forming and foam stabilizing surfactants present in an amount sufficient to facilitate the formation of and stabilize the foam; placing the cement composition in the annulus between the casing and the well bore; and allowing the cement composition to set into a hard impermeable mass therein.

Please amend page 4, paragraph 3 thereof, to read as follows:

(amended) The present invention provides improved methods and compositions for cementing casing in deep water offshore formations or zones penetrated by well bores. The methods basically comprise the steps of preparing a foamed cement composition having a predetermined pumping time and a quick set at low temperatures comprised of calcium aluminate cement, a set accelerating additive, a thickening time increasing additive, water in an amount sufficient to form a slurry, a gas in an amount sufficient to form a foam and a mixture of cement composition foam forming and foam stabilizing surfactants present in an amount sufficient to facilitate the formation of and stabilize the foam; placing the cement composition in the annulus between the casing and the well bore; and allowing the cement composition to set into a hard impermeable mass therein.

In the Claims:

Please cancel claims 1-20.

Please add the following new claims.

21. (new) A foamed cement composition having a predetermined pumping time and a quick set at temperatures as low as about 32°F comprising:

a calcium aluminate cement;

a set accelerating additive;

a thickening time increasing additive;

water in an amount sufficient to form a foam; and

a mixture of cement composition foam forming and foam stabilizing surfactants present in an amount sufficient to facilitate the formation of and stabilize said foam.

22. (new) The cement composition of claim 1 wherein said calcium aluminate cement has an alumina content of about 80% by weight of said cement.

23. (new) The cement composition of claim 1 wherein said set accelerating additive is a lithium salt selected from the group consisting of lithium chloride, lithium carbonate, lithium sulfate and lithium hydroxide.

24. (new) The cement composition of claim 1 wherein said lithium salt is lithium chloride.

25. (new) The cement composition of claim 1 wherein said set accelerating additive is present in said composition in an amount in the range of from about 0.1% to about 1% by weight of cement therein.

26. (new) The cement composition of claim 1 wherein said thickening time increasing additive is selected from the group consisting of citric acid, gluconic acid and tartaric acid.

27. (new) The cement composition of claim 1 wherein said thickening time increasing additive is citric acid.

28. (new) The cement composition of claim 1 wherein said thickening time increasing additive is present in said composition in an amount in the range of from about 0.5% to about 2% by weight of cement therein.

29. (new) The cement composition of claim 1 wherein said water is selected from the group consisting of fresh water and salt water.

30. (new) The cement composition of claim 1 wherein said water is present in said composition in an amount in the range of from about 40% to about 50% by weight of cement therein.

31. (new) The cement composition of claim 1 wherein said gas is selected from the group consisting of air and nitrogen.

32. (new) The cement composition of claim 1 wherein said gas is nitrogen.

33. (new) The cement composition of claim 1 wherein said gas is present in said composition in an amount sufficient to foam said composition to a density in the range of from about 10 to about 12 pounds per gallon.

34. (new) The cement composition of claim 1 wherein said mixture of foam forming and foam stabilizing surfactants in said composition comprises an alcohol ether sulfate ethoxylated with from about 3 to about 10 moles of ethylene oxide, an alkyl or alkene amidopropylbetaine and an alkyl or alkene amidopropyl dimethylamine oxide.

35. (new) The cement composition of claim 1 wherein said mixture of foaming and foam stabilizing surfactants is present in said cement composition in an amount in the range of from about 1% to about 4% by weight of water in said composition.

36. (new) A foamed cement composition having a predetermined pumping time and a quick set at temperatures as low as about 32°F comprising:

a calcium aluminate cement having an alumina content of about 80% by weight of said cement;

a set accelerating additive selected from the group consisting of lithium chloride, lithium carbonate, lithium sulfate and lithium hydroxide present in said composition in an amount in the range of from about 0.2% to about 0.5% by weight of cement therein;

a thickening time increasing additive selected from the group consisting of citric acid, gluconic acid and tartaric acid present in said composition in an amount in the range of from about 0.5% to about 1.5% by weight of cement therein;

water selected from the group consisting of fresh water and salt water present in said composition in an amount in the range of from about 40% to about 50% by weight of cement therein;

nitrogen gas present in said composition in an amount sufficient to foam said cement composition to a density in the range of from about 10 to about 12 pounds per gallon; and

a mixture of foam forming and foam stabilizing surfactants comprised of an alcohol ether sulfate ethoxylated with from about 3 to about 10 moles of ethylene oxide, an alkyl or alkene amidopropylbetaine and an alkyl or alkene amidopropyl dimethylamine oxide, said mixture being present in said composition in an amount in the range of from about 2% to about 3% by weight of water in said composition.

37. (new) The cement composition of claim 16 wherein said set accelerating additive is lithium chloride.

38. (new) The cement composition of claim 16 wherein said thickening time increasing additive is citric acid.

39. (new) The cement composition of claim 16 wherein said water is salt water.

40. (new) The cement composition of claim 16 wherein said mixture of foam forming and foam stabilizing surfactants comprises said ethoxylated alcohol ether sulfate in an amount in the range of from about 60 to about 64 parts by weight, said alkyl or alkene amidopropylbetaine in an amount in the range of from about 30 to about 33 parts by weight and said alkyl or alkene amidopropyldimethylamine oxide in an amount in the range of from about 3 to about 10 parts by weight.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

[Page 1, paragraph 1] (amended) The present invention relates to improved methods and compositions for [of] cementing casing strings in well bores, and more particularly, to methods and compositions for [of] cementing conductor or surface casing strings in deep water offshore wells.

[Page 3, paragraph 2] (amended) The present invention provides improved methods and compositions for [of] cementing casing in deep water offshore formations penetrated by well bores which meet the needs described above and overcome the deficiencies of the prior art. The methods of the invention basically comprise the steps of preparing a foamed cement composition comprised of calcium aluminate cement, a set accelerating additive, a thickening time increasing additive, water in an amount sufficient to form a slurry, a gas in an amount sufficient to form a foam and a mixture of cement composition foam forming and foam stabilizing surfactants present in an amount sufficient to facilitate the formation of and stabilize the foam; placing the cement composition in the annulus between the casing and the well bore; and allowing the cement composition to set into a hard impermeable mass therein.

[Page 4, paragraph 3] (amended) The present invention provides improved methods and compositions for [of] cementing casing in deep water offshore formations or zones penetrated by well bores. The methods basically comprise the steps of preparing a foamed cement composition having a predetermined pumping time and a quick set at low temperatures

comprised of calcium aluminate cement, a set accelerating additive, a thickening time increasing additive, water in an amount sufficient to form a slurry, a gas in an amount sufficient to form a foam and a mixture of cement composition foam forming and foam stabilizing surfactants present in an amount sufficient to facilitate the formation of and stabilize the foam; placing the cement composition in the annulus between the casing and the well bore; and allowing the cement composition to set into a hard impermeable mass therein.

In the Claims:

21. (new) A foamed cement composition having a predetermined pumping time and a quick set at temperatures as low as about 32°F comprising:

a calcium aluminate cement;

a set accelerating additive;

a thickening time increasing additive;

water in an amount sufficient to form a foam; and

a mixture of cement composition foam forming and foam stabilizing surfactants present in an amount sufficient to facilitate the formation of and stabilize said foam.

22. (new) The cement composition of claim 1 wherein said calcium aluminate cement has an alumina content of about 80% by weight of said cement.

23. (new) The cement composition of claim 1 wherein said set accelerating additive is a lithium salt selected from the group consisting of lithium chloride, lithium carbonate, lithium sulfate and lithium hydroxide.

24. (new) The cement composition of claim 1 wherein said lithium salt is lithium chloride.

25. (new) The cement composition of claim 1 wherein said set accelerating additive is present in said composition in an amount in the range of from about 0.1% to about 1% by weight of cement therein.

26. (new) The cement composition of claim 1 wherein said thickening time increasing additive is selected from the group consisting of citric acid, gluconic acid and tartaric acid.

27. (new) The cement composition of claim 1 wherein said thickening time increasing additive is citric acid.

28. (new) The cement composition of claim 1 wherein said thickening time increasing additive is present in said composition in an amount in the range of from about 0.5% to about 2% by weight of cement therein.

29. (new) The cement composition of claim 1 wherein said water is selected from the group consisting of fresh water and salt water.

30. (new) The cement composition of claim 1 wherein said water is present in said composition in an amount in the range of from about 40% to about 50% by weight of cement therein.

31. (new) The cement composition of claim 1 wherein said gas is selected from the group consisting of air and nitrogen.

32. (new) The cement composition of claim 1 wherein said gas is nitrogen.

33. (new) The cement composition of claim 1 wherein said gas is present in said composition in an amount sufficient to foam said composition to a density in the range of from about 10 to about 12 pounds per gallon.

34. (new) The cement composition of claim 1 wherein said mixture of foam forming and foam stabilizing surfactants in said composition comprises an alcohol ether sulfate ethoxylated with from about 3 to about 10 moles of ethylene oxide, an alkyl or alkene amidopropylbetaine and an alkyl or alkene amidopropyl dimethylamine oxide.

35. (new) The cement composition of claim 1 wherein said mixture of foaming and foam stabilizing surfactants is present in said cement composition in an amount in the range of from about 1% to about 4% by weight of water in said composition.

36. (new) A foamed cement composition having a predetermined pumping time and a quick set at temperatures as low as about 32°F comprising:

a calcium aluminate cement having an alumina content of about 80% by weight of said cement;

a set accelerating additive selected from the group consisting of lithium chloride, lithium carbonate, lithium sulfate and lithium hydroxide present in said composition in an amount in the range of from about 0.2% to about 0.5% by weight of cement therein;

a thickening time increasing additive selected from the group consisting of citric acid, gluconic acid and tartaric acid present in said composition in an amount in the range of from about 0.5% to about 1.5% by weight of cement therein;

water selected from the group consisting of fresh water and salt water present in said composition in an amount in the range of from about 40% to about 50% by weight of cement therein;

nitrogen gas present in said composition in an amount sufficient to foam said cement composition to a density in the range of from about 10 to about 12 pounds per gallon; and

a mixture of foam forming and foam stabilizing surfactants comprised of an alcohol ether sulfate ethoxylated with from about 3 to about 10 moles of ethylene oxide, an alkyl or alkene amidopropylbetaine and an alkyl or alkene amidopropyl dimethylamine oxide, said mixture being present in said composition in an amount in the range of from about 2% to about 3% by weight of water in said composition.

37. (new) The cement composition of claim 16 wherein said set accelerating additive is lithium chloride.

38. (new) The cement composition of claim 16 wherein said thickening time increasing additive is citric acid.

39. (new) The cement composition of claim 16 wherein said water is salt water.

40. (new) The cement composition of claim 16 wherein said mixture of foam forming and foam stabilizing surfactants comprises said ethoxylated alcohol ether sulfate in an amount in the range of from about 60 to about 64 parts by weight, said alkyl or alkene amidopropylbetaine in an amount in the range of from about 30 to about 33 parts by weight and said alkyl or alkene amidopropyldimethylamine oxide in an amount in the range of from about 3 to about 10 parts by weight.